

Notice of Allowability

Application No.

09/960,125

Examiner

Steven H. Rao

Applicant(s)

LI ET AL.

Art Unit

2814

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 05/062004.
2. ☒ The allowed claim(s) is/are 1,5,6 and 30-41.
3. ☒ The drawings filed on 22 December 2003 are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____

Response to Amendment

Applicants' amendment filed on March 05, 2004 has been entered on March 10, 2004 and the Supplemental amendment faxed on March 05, 2004 has been entered on May 06, 2004.

Therefore claims 1,30 and 35 as amended by the Supplemental amendment and claims 5-6,31-34,36-40 as previously recited are currently pending in the Application.

Claims 2-4 and 7-29 were previously cancelled.

Claim 42 has been cancelled by the following Examiner's Amendment.

EXAMINER'S AMENDMENT

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Mr.. Anthony Martinez (44,223) on May 13, 2004

Cancel claim 42.

Reasons for allowance

Claims 1,5,6,30-41 are allowed.

The following is an examiner's statement of reasons for allowance:

The prior art taken either singularly or in combination fails to anticipate or, fairly suggest the limitation of the dependent claims, in such manner that a rejection under 35


U.S.C. 102 or 103 would be proper. The prior art fails to teach a combination of all the claimed features as presented in independent claims (claims 1,30 and 35) , which include the method steps of forming a first metal layer (electrode) over the substrate, forming ferro electric memory structure over the substrate and first topology layer wherein the first metal layer (electrode) has a thickness ranging from 0.1 micron to 1 micron. (claim 1) and forming a second ferro electric memory layer , at three dielectric layers, and three metal layer s . With respect to claims 30 the method steps including forming a first electrode over the substrate, forming the first ferro electric oxide memory layer over the first electrode wherein the ferro oxide memory layer has a thickness ranging from about 500 to about 2500 Angstroms, forming second electrode over the first ferro oxide memory layer and forming a second ferro electric oxide memory layer over the first ferro oxide memory layer wherein the second ferroelectric oxide memory layer is larger than the first ferro electric oxide memory layer . With respect to claim 35 forming a structure having a cavity formed therein, the structure having a first electrode over a substrate, a first dielectric layer adjacent to the first electrode and defines a cavity , forming a via coupled to first electrode and forming a ferro electric memory layer in the cavity over the first electrode wherein the ferro electric memory layer is 500 to 2500 angstroms thick. (See also related patent USPNO. 6,624,457).

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

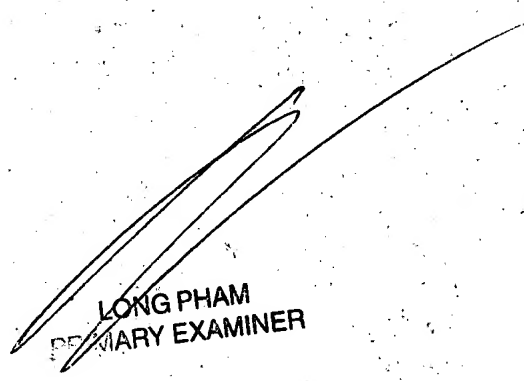
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Steven H. Rao whose telephone number is (703) 3065945. The examiner can normally be reached on 8.00 to 5.00.

The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Steven H. Rao

Patent Examiner


LONG PHAM
PRIMARY EXAMINER